TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

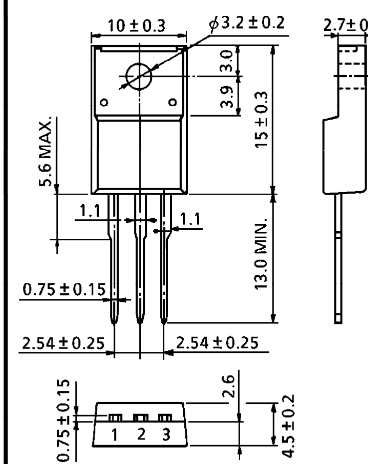
2SD1407A

POWER AMPLIFIER APPLICATIONS

INDUSTRIAL APPLICATIONS

Unit in mm

- High Breakdown Voltage : $V_{CEO}=100V$
- Low Collector Saturation Voltage : $V_{CE(sat)}=2.0V$ (Max.)
- Complementary to 2SB1016A



1. BASE
2. COLLECTOR
3. EMITTER

JEDEC	—
EIAJ	—
TOSHIBA	2-10R1A

MAXIMUM RATINGS (Ta = 25°C)

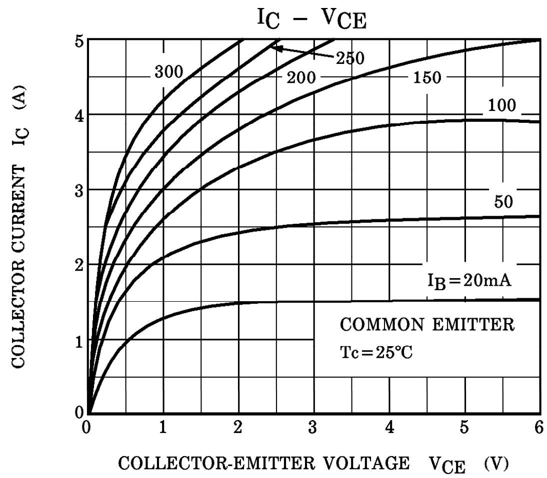
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	5	A
Base Current	I_B	0.5	A
Collector Power Dissipation (Tc = 25°C)	P_C	30	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55~150	°C

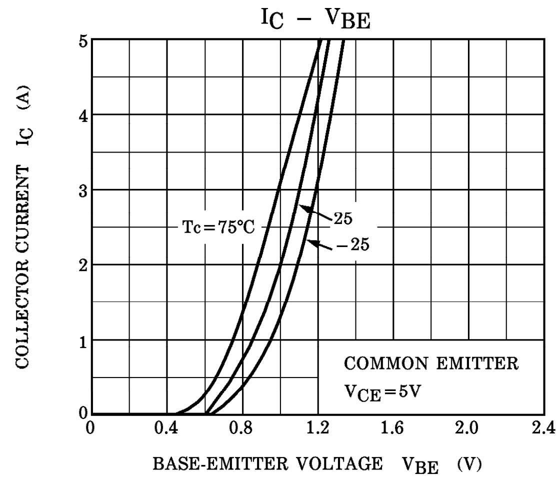
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

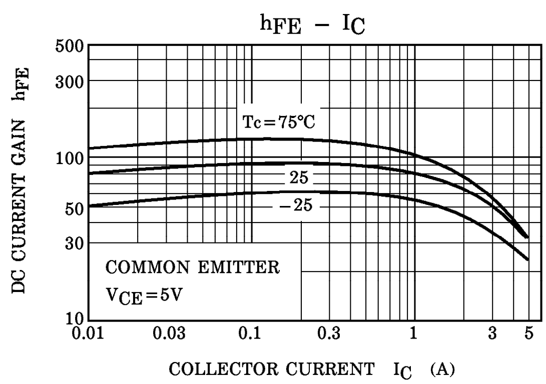
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB}=100V$, $I_E=0$	—	—	100	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=5V$, $I_C=0$	—	—	1	mA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=50mA$, $I_B=0$	100	—	—	V
DC Current Gain	$h_{FE(1)}$ (Note)	$V_{CE}=5V$, $I_C=1A$	40	—	240	
	$h_{FE(2)}$	$V_{CE}=5V$, $I_C=4A$	20	—	—	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=4A$, $I_B=0.4A$	—	—	2.0	V
Base-Emitter Saturation Voltage	V_{BE}	$V_{CE}=5V$, $I_C=1A$	—	—	1.5	V
Transition Frequency	f_T	$V_{CE}=5V$, $I_C=1A$	—	12	—	MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=10V$, $I_E=0$, f=1MHz	—	100	—	pF

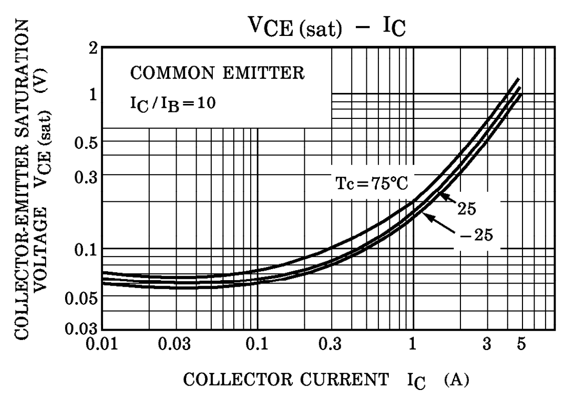
(Note) $h_{FE(1)}$ Classification R : 40~80, O : 70~140, Y : 120~240

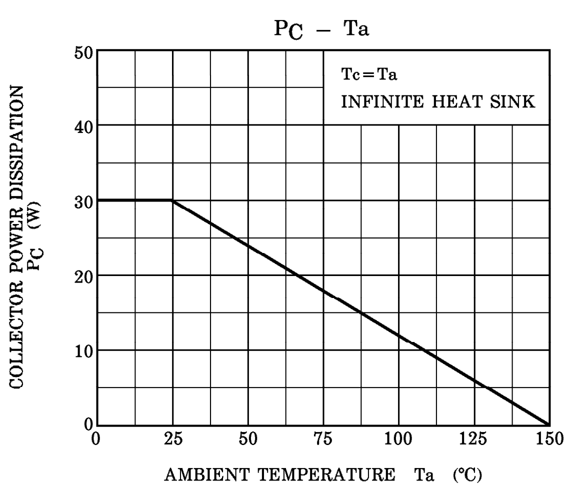
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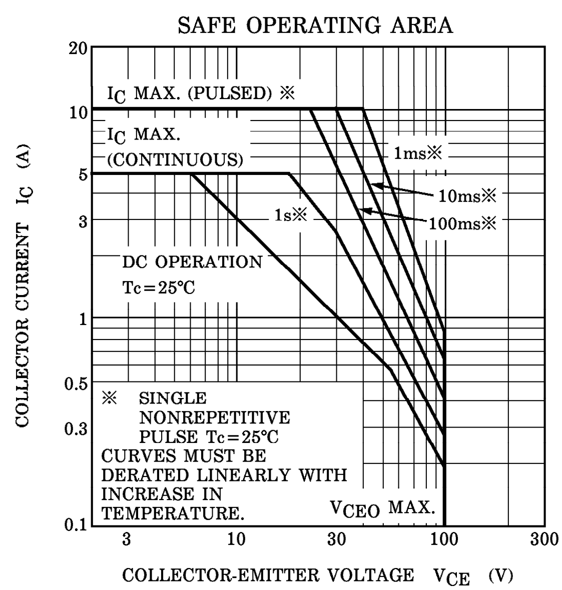

IC – VCE
COLLECTOR CURRENT IC (A)
COLLECTOR-EMITTER VOLTAGE VCE (V)
300
250
200
150
100
50
IB = 20mA
COMMON EMITTER
Tc = 25°C


IC – VBE
COLLECTOR CURRENT IC (A)
BASE-EMITTER VOLTAGE VBE (V)
Tc = 75°C
25
−25
COMMON EMITTER
VCE = 5V


hFE – IC
DC CURRENT GAIN hFE
COLLECTOR CURRENT IC (A)
Tc = 75°C
25
−25
COMMON EMITTER
VCE = 5V


VCE (sat) – IC
COLLECTOR-EMITTER SATURATION VOLTAGE VCE (sat) (V)
COLLECTOR CURRENT IC (A)
COMMON EMITTER
IC / IB = 10
Tc = 75°C
25
−25


PC – Ta
COLLECTOR POWER DISSIPATION PC (W)
AMBIENT TEMPERATURE Ta (°C)
Tc = Ta
INFINITE HEAT SINK


SAFE OPERATING AREA
COLLECTOR CURRENT IC (A)
COLLECTOR-EMITTER VOLTAGE VCE (V)
IC MAX. (PULSED) ※
IC MAX. (CONTINUOUS)
1ms※
10ms※
100ms※
1s※
DC OPERATION
Tc = 25°C
※ SINGLE NONREPETITIVE PULSE Tc = 25°C
CURVES MUST BE DERATED LINEARLY WITH INCREASE IN TEMPERATURE.
VCEO MAX.